

What is claimed is:

- 1 1. A dual-panel active matrix organic electroluminescent display, comprising:
 - 2 an organic electroluminescent display panel;
 - 3 an active matrix panel; and
 - 4 a conducting and adhesive material between said two panels.
- 1 2. The dual-panel active matrix organic electroluminescent display as claimed in claim
- 2 1, said active matrix panel being a thin-film-transistor panel.
- 1 3. The dual-panel active matrix organic electroluminescent display as claimed in claim
- 2 2, said active matrix panel being a polycrystalline-silicon or an amorphous-silicon
- 3 thin-film-transistor panel.
- 1 4. The dual-panel active matrix organic electroluminescent display as claimed in claim
- 2 2, wherein each single pixel on said thin-film-transistor panel has at least one scan
- 3 bus line, at least one data bus line, an active matrix layout portion, and a contact
- 4 region for adhering to and conducting with said organic electroluminescent display
- 5 panel.
- 1 5. The dual-panel active matrix organic electroluminescent display as claimed in claim
- 2 1, wherein said conducting and adhesive material is chosen from the group of an
- 3 anisotropic conductive film, an anisotropic conductive adhesive, a conducting resin,
- 4 an Ag epoxy, and a metal bump.
- 1 6. The dual-panel active matrix organic electroluminescent display as claimed in claim

2 1, wherein said conducting and adhesive material has resistance in a range between
3 0.1 and 10^6 ohms.

1 7. The dual-panel active matrix organic electroluminescent display as claimed in claim
2 1, wherein said organic electroluminescent display panel further comprising:

3 a transparent substrate having top and bottom surfaces;

4 a layer of transparent material deposited on the top surface of said transparent
5 substrate;

6 a patterned organic electroluminescent film deposited on said layer of transparent
7 material;

8 a cathode layer deposited on said patterned organic electroluminescent film; and

9 a passivation layer formed on said cathode layer for protecting said patterned organic
10 electroluminescent film from being damaged by water and oxygen;

11 wherein an opening is formed on the top of said cathode layer as a contact window to
12 said active matrix panel.

1 8. The dual-panel active matrix organic electroluminescent display as claimed in claim
2 7, said organic electroluminescent film being an electron hole transmission layer, a
3 electron transmission layer, or an organic light layer.

1 9. A method for manufacturing a dual-panel active matrix organic electroluminescent
2 display, comprising the steps of:

3 fabricating an organic electroluminescent display panel;

4 fabricating an active matrix panel;
5 disposing a conducting and adhesive material between said organic
6 electroluminescent display panel and said active matrix panel; and
7 adhering and bonding said two panels together.

1 10. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, said conducting and adhesive material being deposited
3 on said active matrix panel to bond said two panels together with pixel-to-pixel
4 alignment.

1 11. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, wherein the step of adhering and bonding said two
3 panels comprises a UV exposure method or a thermal curing method.

1 12. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, wherein a UV light curable anisotropic conductive
3 adhesive is used as the conducting and adhesive material, and the step of adhering
4 and bonding said two panels comprises placing a heater on a surface of said organic
5 electroluminescent display panel, adding pressure to said heater, and exposing a
6 surface of said active matrix panel to a UV light.

1 13. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, wherein a metal bump of low melting point is used as
3 the conducting and adhesive material, and the step of adhering and bonding said two
4 panels comprises applying hot air on a surface of said organic electroluminescent

5 display panel and a surface of said active matrix panel.

1 14. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, wherein an anisotropic conductive film is used as the
3 conducting and adhesive material, and the step of adhering and bonding said two
4 panels comprises placing a heater on a surface of said organic electroluminescent
5 display panel, and applying heat and pressure to said heater.

1 15. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 9, wherein fabricating said organic electroluminescent
3 display panel further comprises the steps of:

4 (a) preparing a transparent substrate having top and bottom surfaces;
5 (b) depositing a layer of transparent material on the top surface of said transparent
6 substrate;
7 (c) depositing a patterned organic electroluminescent film on said layer of transparent
8 material;
9 (d) depositing a cathode layer on said patterned organic electroluminescent film; and
10 (e) forming a passivation layer on said cathode layer for protecting said patterned
11 organic electroluminescent film from being damaged by water and oxygen;

12 wherein an opening is formed on the top of said cathode layer as a contact window to
13 said active matrix panel.

1 16. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 15, said organic electroluminescent film being deposited
3 by a shadow mask method using organic light-emitting diodes of small molecules.

1 17. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 15, said organic electroluminescent film being deposited
3 by an inkjet printing method using organic light-emitting diodes of high molecules.

1 18. The method for manufacturing a dual-panel active matrix organic electroluminescent
2 display as claimed in claim 15, wherein said conducting and adhesive material is
3 deposited over said passivation layer on said organic electroluminescent display
4 panel to bond said two panels together with pixel-to-pixel alignment.